

**UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF CALIFORNIA**

HOOPA VALLEY TRIBE,

Plaintiff,

v.

Case No. 1:20-cv-01814-JLT-EPG

UNITED STATES BUREAU OF
RECLAMATION; DEBRA ANNE
HAALAND, in her official capacity as
Secretary of the Interior; MARIA
CAMILLE CALIMLIM TOUTON, in her
official capacity as Commissioner of the
United States Bureau of Reclamation;
ERNEST A. CONANT, in his official
capacity as U.S. Bureau of Reclamation
California-Great Basin Regional Director;
and UNITED STATES DEPARTMENT OF
THE INTERIOR

Defendants.

DECLARATION

I, Michael Dixon, declare as follows:

1. I am currently the Executive Director of the Trinity River Restoration Program ("Restoration Program"), where I lead a partnership of six agencies and two tribes in efforts to restore the anadromous fisheries of the Trinity River. I have held that position since March of 2019. Previously I served as the Restoration Program's Implementation Branch Chief where I oversaw the design, permitting, and construction of restoration projects throughout the Trinity River watershed. In prior positions, I served as a refuge planner and wildlife biologist with the U.S. Fish & Wildlife Service, where I provided landscape conservation planning expertise to the national wildlife refuges of the Rocky Mountains and Great Plains; as well as a refuge manager at the Arapaho National Wildlife Refuge, where I became intimately involved in streamflow, fisheries, and riparian habitat restoration efforts. I am also a Commander (select) in the U.S. Coast Guard Reserve; much of my 20 years of active and reserve service has been in the Marine Environmental Protection & Response fields.
2. My primary areas of expertise are in natural resource policy and restoration ecology. I have a Ph.D. in Conservation Biology from the University of Minnesota, Twin Cities; a M.S. in Biology with a minor in Applied and Computational Mathematics from the University of Minnesota, Duluth; and a B.S. in Ecology and Systematic Biology with an

emphasis in Wildlife Biology from California Polytechnic State University, San Luis Obispo.

3. In addition to working as the Executive Director of the Restoration Program, I have a history with this region going back to childhood and reside on a tributary stream of the Trinity River with my family. Recreation on the river is central to our lives. I feel a profound sense of personal responsibility for the future of the Trinity River and its wildlife.
4. I am writing this declaration to ensure that the record reflects that the Trinity River Winter Flow Project represents an adaptive management proposal based on more recent studies designed to improve natural river conditions and survival rates for juvenile salmonids in the Trinity River; was the work of a coalition of natural resource trustees who worked to ensure the same; and to emphatically urge the court to decide this issue expeditiously before we lose an entire year in which we could improve Trinity River flow management based on the best available science to meet tribal trust obligations and put anadromous fish populations on a trajectory toward recovery.
5. The Restoration Program was mandated by the 2000 Trinity River Mainstem Fishery Restoration Record of Decision (“2000 ROD”) to incorporate an adaptive management approach to implementing its restoration tools. Per the 2000 ROD, the adaptive management approach is designed to “ensure the proper implementation of the [ROD’s] measures, conduct appropriate scientific monitoring and evaluation efforts, and *recommend possible adjustments to the annual flow schedule within the designated flow volumes provided for in this ROD* or other measures in order to ensure that the restoration and maintenance of the Trinity River anadromous fishery continues based on the best available scientific information and analysis.” [my emphasis]
6. The Trinity River Division (TRD) of the Central Valley Project lies approximately 86 miles upstream of the Hoopa Valley Reservation (see attached map), and virtually all Trinity River restoration program efforts occur well outside the Hoopa Valley Reservation. The Restoration Program funds restoration projects in tributaries throughout the Trinity River watershed (including on the Hoopa Valley Reservation), but the vast majority of its work including mainstem channel rehabilitation, gravel augmentation, and flow management are within the 40 mile “restoration reach” between Lewiston Dam and the Trinity’s confluence with the North Fork Trinity River. While the Restoration Program is intended to benefit the Hoopa Valley and Yurok Tribes’ downstream fisheries (and non-tribal fisheries), the “restoration reach” itself ends approximately 55 river miles upstream of the Hoopa Valley Reservation and 72.5 miles above the Yurok Reservation.
7. Because of its adaptive management approach, the Restoration Program has a robust science and monitoring program that informs our decision making. Based in part upon the primary literature and in part on preliminary findings from several monitoring projects, in

2016 the program began to investigate potential changes to flow management that could improve juvenile salmon growth and survival. The 2000 ROD was very specific regarding changes to flow management, saying “Based on subsequent monitoring and studies guided by the Trinity Management Council, the schedule for releasing water on a daily basis, according to that year’s hydrology, may be adjusted but the annual flow volumes established in [a referenced table] may not be changed” (USDI 2000, p12). Consequently, this effort focused on how to reschedule existing volumes as set forth in the 2000 ROD and does not seek to change annual flow volumes.

8. It is well established that salmon evolved with and require variable flows (Groot and Margolis 1991). Disturbance of the river’s bed increases short term food availability (Parker and Power 1997) by dislodging aquatic insects and initiates longer-term insect productivity (Merz et al. 2012). Trinity River flows are held static and artificially low below Lewiston Dam during winter when flows would naturally be most variable. Under the current flow management regime, riverbed scour and inundation of natural and Restoration Program-constructed floodplain habitat do not occur until after April 15 when managed restoration releases start, by which time 47%-87% of juvenile chinook have already migrated downstream of the restoration reach of the Trinity River (Petros et al. 2017), dramatically reducing the potential value of restored physical and ecological processes for the fish they are designed to benefit.
9. Further, the current timing of dam releases for restoration purposes in late spring and early summer has been found to suppress juvenile salmon growth. Warmer water temperature results in faster salmon growth (Lusardi et al. 2019). This is critical because the size of chinook salmon smolts when they reach the ocean is directly correlated with their survival (Pearcy 1992; Beamish and Malnaken 2001). Recent work by the Restoration Program has shown that in all years, but particularly in wetter years, the initiation of restoration releases in mid-spring significantly decreases river temperatures and holds juvenile chinook salmon for a prolonged period below the optimal temperature range for their growth (Abel et al 2022). This is validated by long term monitoring of out-migrating juvenile chinook in the Trinity River. There has been a significant increase in the number of juvenile fish produced since restoration actions were initiated, but by late spring, the fish trapped are consistently smaller since flows from the 2000 ROD began in 2005 (Pinnix 2022; Thomas Gast and Associates 2021); further, the artificially cold temperatures may be keeping salmon in the upper Trinity River longer, which exposes them to more hostile conditions in the lower Trinity and Klamath Rivers (Thomas Gast and Associates 2021). This is strong evidence that temperature suppression due to status quo restoration flow management is undermining otherwise successful restoration actions in the upper river and impeding recovery of its salmon populations.
10. A team consisting of biologists from the National Marine Fisheries Service, Yurok Tribe, California Department of Fish and Wildlife, and Bureau of Reclamation, with contributions by the Hoopa Valley Tribe, synthesized available scientific literature and

recent studies specific to the Trinity River into a proposal to shift some of the TRD releases typically scheduled for April and May to earlier in the year. This analysis became the Trinity River Winter Flow Project Final Report (Abel et al. 2022), which proposed to shift a portion of 2000 ROD restoration flow volume earlier in the year through a synchronized dam release during a storm event, followed by elevated late winter and early spring baseflows, in order to:

- a. Better match natural flow variability during winter and spring runoff events and synchronize ecological processes between tributaries and the mainstem Trinity River
 - b. Enhance natural cleaning and transport of river gravels, reduce buildup of sediment at tributary mouths, and increase effectiveness of peak flows by having a dam-controlled flow peak coincide with a major storm event
 - c. Reduce cold water releases in spring/summer that suppress juvenile salmon metabolism, reduce growth rates of their prey, and disrupts the breeding of other aquatic species including foothill yellow-legged frog
 - d. Allow the river to naturally warm earlier in the season to provide proper environmental cues that smolts rely on to time their outmigration to the ocean
 - e. Increase food availability for juvenile salmon through earlier production of macroinvertebrate prey species through floodplain inundation
 - f. Inundate natural and constructed floodplains and other productive off-channel rearing habitats for juvenile salmon to provide diversity of foraging habitats and temperatures and increase overall habitat capacity.
11. Specifically, the Winter Flow Report recommends that a peak flow of 6,500 cubic feet per second (cfs) be released between December 15 and February 15 to coincide with a storm event predicted to raise flows at the Trinity River above the North Fork Trinity River gage to 4,500 cfs or greater. Under current management, no water is released above the 300 cfs winter base flow between December 15 and February 15. Under the Winter Flow Project, additional fixed volumes will be released during the elevated baseflow period of February 15-April 15 based upon the California Department of Water Resources (DWR) February 1 and March 1 Bulletin 120 Trinity Reservoir inflow forecasts. Based on DWR's April 1 water year forecast, the TMC will subsequently recommend a spring restoration release schedule that best achieves ROD objectives for the remaining water for the specified water year determination. The proportion of water shifted to use earlier than the start of the April 15 spring restoration flow release is shown in Table 1 below.
12. Modeling of this proposal predicts a range of benefits to Trinity River salmon. By shifting some water from the late spring and summer to the winter period, there is a reduction (though not elimination) of restoration flow-induced temperature suppression, leading to increased chinook salmon growth; hindcasting of hypothetical winter flow proposal hydrographs onto the years 2006-2019 predicted a 5.7%-19.2% increase in the

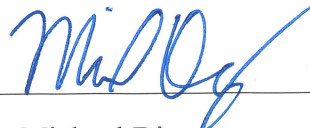
size of juvenile chinook salmon migrating to the ocean (Abel et al. 2022). A model of physical habitat capacity across a range of flows (Cooper-Hertel et al. 2022) anticipates that the earlier inundation of floodplain and off-channel habitats under the winter flow proposal results a 7.5%-8.1% increase in available juvenile salmon habitat relative to the baseline (Abel et al. 2022). By adding a single winter pulse flow release in the December-February period, there is an estimated 24% increase in the area of annual river bed disturbance, which has important ramifications for the river's ability to build and maintain physical salmon habitat, as well as increasing food availability for juvenile salmon by dislodging insects.

13. The Restoration Program's multiagency Interdisciplinary Team (a technical advisory body in which all Restoration Program partner agencies and tribes participate) unanimously recommended in 2022 that the Winter Flow Project be implemented. This prompted a December 7, 2022 vote of the Trinity Management Council (the Restoration Program's governance board which recommends annual hydrographs to the Department of the Interior ("Interior") under the 2000 ROD), which approved by a 7-1 majority a motion to recommend that Interior implement the winter flow project. Votes in favor were cast by the National Marine Fisheries Service, U.S. Fish & Wildlife Service, U.S. Forest Service, Bureau of Reclamation, Yurok Tribe, California Natural Resources Agency, and Trinity County. The Hoopa Valley Tribe voted to oppose.
14. This proposal, and the expected geomorphological and ecological benefits that come with it, come with little risk to the environment and no cost in terms of water or restoration funding. The ruleset guiding how the Winter Flow Project will be implemented prevents overspending the water budget for the water year, and ensures that enough water remains in the spring and summer period to achieve the water-year specific objectives from the Trinity River Flow Evaluation Report. The Winter Flow Project will not alter existing summer base-flows of 450 cubic feet per second.
15. The Restoration Program's own data shows that we are making significant strides in restoring the processes and habitat of the Trinity River, but also that our current flow management may be working against us. Shifting a portion of the 2000 ROD-allocated restoration volume earlier in the year is essential to Interior's ability to meet its legal mandate to restore the Trinity River fishery to pre-dam population levels. Implementing the recommended winter flow proposal this year is particularly important, as 2022 saw the largest spring chinook salmon run since 1978 (Wade Sinnen/CA Dept of Fish & Wildlife, pers. Comm. 2022); as well as the largest return of federally-listed Southern Oregon-Northern California Coast coho salmon in over a decade (CA Dept of Fish & Wildlife, unpublished data). We can only build on this year's runs if the progeny of those spawners have access to habitat at the right time of year, and if we do not suppress their growth by releasing water too late in the year. If we cannot make this change based on the best available science, there is little point in the other restoration actions that the Restoration Program has invested hundreds of millions of dollars in for the last 22 years.

16. The action window for the flow synchronization period began December 15. We have already missed multiple opportunities for a flow synchronization event, which is unprecedented in the recent hydrologic record. The time window for a synchronization flow ends February 15; no additional triggering events are forecast in the next 10 days, and the mid-term forecast from the National Weather Service shows a shift to less active weather by the end of January, so the delay in a decision on this topic may already have caused us to miss implementation of this component of the proposal entirely. This would result in us missing some significant geomorphic benefits, but there are other effects of equal or greater importance that come with the non-weather dependent increased baseflow period which begins February 15. These include both the aforementioned increase in habitat capacity for juvenile salmon, and the temperature benefits of shifting that water out of the spring/summer period when it has been shown to be detrimental to salmon growth and survival. There is already contractual monitoring effort committed to this action, including work to be performed by the Yurok Tribe in collaboration with Cal Poly Humboldt, that would not be able to occur if the increased baseflows do not occur as scheduled. While there would undoubtedly still be fisheries benefits to starting this action later than February 15, modeling of this action was based on that start date and the magnitude of any effects that could be detected through monitoring could be muted; in other words, not beginning the baseflow increase on February 15 may impede our ability to adequately monitor and evaluate the hypotheses associated with this proposal to demonstrate its benefits. The lack of a decision to implement this proposal since the start of the action period on December 15 amounts to an injunction-in-fact, even though no such injunction has been granted. It is imperative that a decision be made rapidly on the matter before the court.

I declare, under penalty of perjury pursuant to 28 U.S.C. 1746, that the foregoing is to the best of my knowledge true and correct.

Executed this 13th day of January, 2023 in Trinity County of California



Dr. Michael Dixon

Water Year Type	ROD Water Volume (af)	ROD Volume Shifted to Winter Period under Proposed Action (af)	Percent ROD Volume Shifted from Summer to Winter under Proposed Action
Critically Dry	369,000	60,000	16%
Dry	453,000	80,000	18%
Normal	647,000	120,000	19%
Wet	701,000	180,000	26%
Extremely Wet	815,000	220,000	27%

Table 1. Water volumes shifted to winter/early spring period in acre-feet for each forecasted water year type, from [Abel et al. 2022](#), p29.

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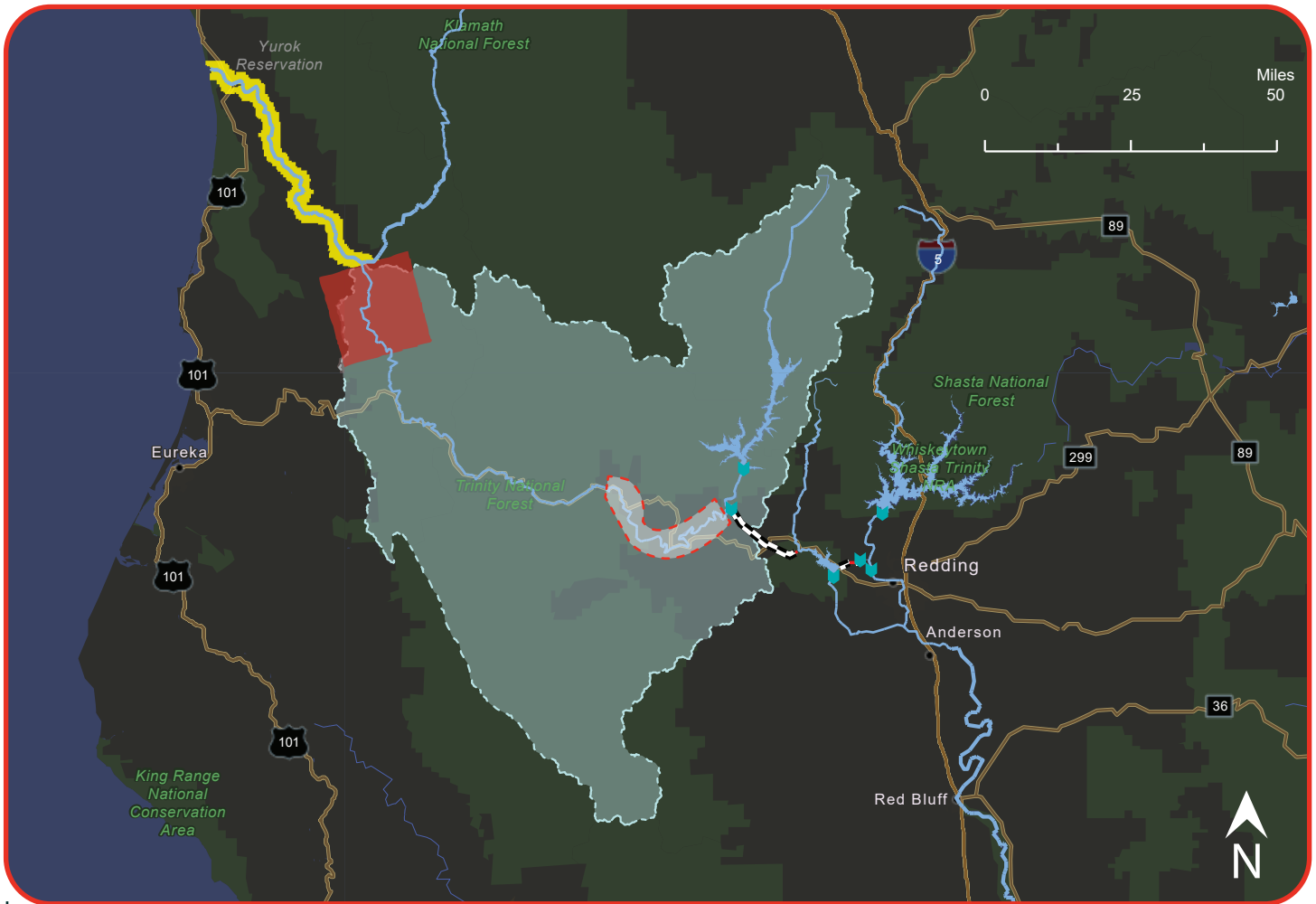
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Greater Trinity Watershed



Area Enlarged



Legend

-  Greater Trinity Watershed
-  Yurok Reservation
-  Hoopa Valley Reservation
-  Trinity River Restoration Program 40 Mile Restoration Reach
-  Private Lands
-  Public Lands
-  Bureau of Reclamation Dam Infrastructure
-  Bureau of Reclamation Tunnel Infrastructure

Date: 1/9/2023

DISCLAIMER: This map and data are provided as-is and are intended for general reference only. None of the parties involved in preparing the map or data contained herein warrant or represent the data to be complete and accurate.